

Amendment and Response
Applicant: Mark Haines et al.
Serial No.: 10/635,409
Filed: August 6, 2003
Docket No.: 200210234-1
Title: FILTER FOR PRINthead ASSEMBLY

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IN THE CLAIMS

Please cancel claims 4, 16, 28, and 36 without prejudice.

Please amend claims 1, 5, 6, 13, 17, 18, 25, 29, 30, 33, 37, and 38 as follows:

1. (Currently Amended) A filter for a printhead assembly, the filter comprising:
a frame having an opening and a fluid passage communicated with the opening formed therein;
filter material enclosing the opening and the fluid passage of the frame;
a first fluid port communicated with the fluid passage of the frame;
a permeable material communicated with ~~provided in a fluid path of~~ the first fluid port; and
a second fluid port spaced from the first fluid port and communicated with the fluid passage of the frame.
2. (Original) The filter of claim 1, wherein the fluid passage of the frame is adapted to direct air from the first fluid port to the second fluid port.
3. (Original) The filter of claim 1, wherein the permeable material is adapted to allow air to pass therethrough before the permeable material is wetted by liquid ink and prevent air from passing therethrough when the permeable material is wetted by the liquid ink.
4. (Cancelled)
5. (Currently Amended) The filter of claim 4A filter for a printhead assembly, the filter comprising:
a frame having an opening and a fluid passage communicated with the opening formed therein;
filter material enclosing the opening and the fluid passage of the frame;
a first fluid port communicated with the fluid passage of the frame;
a permeable material communicated with the first fluid port; and

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a second fluid port spaced from the first fluid port and communicated with the fluid passage of the frame,

wherein the permeable material includes a porous plug fitted within the first fluid port, wherein the porous plug is impregnated with a clogging agent.

6. (Currently Amended) The filter of claim 1A filter for a printhead assembly, the filter comprising:

a frame having an opening and a fluid passage communicated with the opening formed therein;

filter material enclosing the opening and the fluid passage of the frame;

a first fluid port communicated with the fluid passage of the frame;

a permeable material communicated with the first fluid port; and

a second fluid port spaced from the first fluid port and communicated with the fluid passage of the frame,

wherein the permeable material includes a mesh material.

7. (Original) The filter of claim 1, wherein the filter material is secured to the frame around a perimeter of the opening.

8. (Original) The filter of claim 1, wherein the filter material has a mesh size in a range of approximately 2 microns to approximately 20 microns.

9. (Original) The filter of claim 1, wherein the filter material is adapted to allow liquid ink to pass therethrough, and wherein the filter material is adapted to prevent air from passing therethrough when the filter material is wetted by the liquid ink.

10. (Original) The filter of claim 9, wherein the filter material is adapted to allow air to pass therethrough before the filter material is wetted by the liquid ink.

11. (Original) The filter of claim 1, wherein the frame has a first face and a second face opposite the first face, wherein the opening of the frame communicates with the first face and

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the second face, and wherein the filter material is provided on the first face and the second face of the frame.

12. (Original) The filter of claim 1, wherein the frame has a substantially rectangular shape, and wherein the first fluid port and the second fluid port extend from a side of the substantially rectangular shape.

13. (Currently Amended) A method of forming a filter for a printhead assembly, the method comprising:

forming a frame with an opening and a fluid passage, including communicating the fluid passage with the opening;

enclosing the opening and the fluid passage of the frame with filter material;

communicating a first fluid port and a second fluid port with the fluid passage of the frame, including spacing the second fluid port from the first fluid port; and

~~communicating providing a permeable material with in a fluid path of the first fluid port.~~

14. (Original) The method of claim 13, wherein the fluid passage of the frame is adapted to direct air from the first fluid port to the second fluid port.

15. (Original) The method of claim 13, wherein the permeable material is adapted to allow air to pass therethrough before the permeable material is wetted by liquid ink and prevent air from passing therethrough when the permeable material is wetted by the liquid ink.

16. (Cancelled)

17. (Currently Amended) ~~The method of claim 16~~ A method of forming a filter for a printhead assembly, the method comprising:

forming a frame with an opening and a fluid passage, including communicating the fluid passage with the opening;

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enclosing the opening and the fluid passage of the frame with filter material;
communicating a first fluid port and a second fluid port with the fluid passage of the
frame, including spacing the second fluid port from the first fluid port; and
communicating a permeable material with the first fluid port, including fitting a
porous plug within the first fluid port, wherein the porous plug is impregnated with a
clogging agent.

18. (Currently Amended) The method of claim 13A method of forming a filter for a
printhead assembly, the method comprising:

forming a frame with an opening and a fluid passage, including communicating the
fluid passage with the opening;
enclosing the opening and the fluid passage of the frame with filter material;
communicating a first fluid port and a second fluid port with the fluid passage of the
frame, including spacing the second fluid port from the first fluid port; and
communicating a permeable material with the first fluid port, wherein communicating
the permeable material with the first fluid port includes including communicating a mesh
material with the first fluid port.

19. (Original) The method of claim 13, wherein enclosing the opening and the fluid
passage of the frame includes securing the filter material to the frame around a perimeter of
the opening.

20. (Original) The method of claim 13, wherein the filter material has a mesh size in a
range of approximately 2 microns to approximately 20 microns.

21. (Original) The method of claim 13, wherein the filter material is adapted to allow
liquid ink to pass therethrough, and wherein the filter material is adapted to prevent air from
passing therethrough when the filter material is wetted by the liquid ink.

22. (Original) The method of claim 21, wherein the filter material is adapted to allow air
to pass therethrough before the filter material is wetted by the liquid ink.

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23. (Original) The method of claim 13, wherein the frame has a first face and a second face opposite the first face, wherein forming the frame includes communicating the opening with the first face and the second face of the frame, and wherein enclosing the opening and the fluid passage of the frame includes providing the filter material on the first face and the second face of the frame.

24. (Original) The method of claim 13, wherein the frame has a substantially rectangular shape, and wherein communicating the first fluid port and the second fluid port with the fluid passage of the frame includes extending the first fluid port and the second fluid port from a side of the substantially rectangular shape.

25. (Currently Amended) A printhead assembly, comprising:
a carrier having a fluid manifold defined therein;
a printhead die mounted on the carrier and communicated with the fluid manifold; and
a fluid delivery assembly coupled with the carrier and including a filter including a frame having an opening and a fluid passage communicated with the opening formed therein, filter material enclosing the opening and the fluid passage of the frame, first and second fluid ports communicated with the fluid passage, and a permeable material ~~communicated with~~
provided in a fluid path of the first fluid port,
wherein the second fluid port of the filter communicates with the fluid manifold of the carrier.

26. (Original) The printhead assembly of claim 25, wherein the fluid passage of the frame is adapted to direct air from the first fluid port to the second fluid port.

27. (Original) The printhead assembly of claim 25, wherein the permeable material of the filter is adapted to allow air to pass therethrough before the permeable material is wetted by liquid ink and prevent air from passing therethrough when the permeable material is wetted by the liquid ink.

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28. (Cancelled)

29. (Currently Amended) The printhead assembly of claim 28A printhead assembly, comprising:

a carrier having a fluid manifold defined therein;
a printhead die mounted on the carrier and communicated with the fluid manifold; and
a fluid delivery assembly coupled with the carrier and including a filter including a
frame having an opening and a fluid passage communicated with the opening formed therein,
filter material enclosing the opening and the fluid passage of the frame, first and second fluid
ports communicated with the fluid passage, and a permeable material communicated with the
first fluid port,

wherein the second fluid port of the filter communicates with the fluid manifold of the
carrier,

wherein the permeable material of the filter includes a porous plug fitted within the
first fluid port, wherein the porous plug is impregnated with a clogging agent.

30. (Currently Amended) The printhead assembly of claim 25A printhead assembly, comprising:

a carrier having a fluid manifold defined therein;
a printhead die mounted on the carrier and communicated with the fluid manifold; and
a fluid delivery assembly coupled with the carrier and including a filter including a
frame having an opening and a fluid passage communicated with the opening formed therein,
filter material enclosing the opening and the fluid passage of the frame, first and second fluid
ports communicated with the fluid passage, and a permeable material communicated with the
first fluid port,

wherein the second fluid port of the filter communicates with the fluid manifold of the
carrier,

wherein the permeable material of the filter includes a mesh material.

31. (Original) The printhead assembly of claim 25, wherein the filter material of the filter is adapted to allow liquid ink to pass therethrough, and wherein the filter material of the filter

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is adapted to prevent air from passing therethrough when the filter material is wetted by the liquid ink.

32. (Original) The printhead assembly of claim 31, wherein the filter material of the filter is adapted to allow air to pass therethrough before the filter material is wetted by the liquid ink.

33. (Currently Amended) A method of supplying liquid ink to a printhead assembly including a carrier, a printhead die mounted on the carrier, and a fluid delivery assembly communicated with the carrier, the method comprising:

communicating a fluid manifold of the carrier with the printhead die;
communicating the fluid delivery assembly with the fluid manifold of the carrier; and
filling the fluid delivery assembly with a quantity of the liquid ink, including purging air from the fluid delivery assembly through a filter,
wherein the filter includes a frame having an opening and a fluid passage communicated with the opening formed therein, filter material enclosing the opening and the fluid passage of the frame, first and second fluid ports communicated with the fluid passage, and a permeable material communicated with provided in a fluid path of the first fluid port.

34. (Original) The method of claim 33, wherein purging air from the fluid delivery assembly includes directing air from the first fluid port to the second fluid port through the fluid passage of the frame.

35. (Original) The method of claim 33, wherein purging air from the fluid delivery assembly includes passing air through the permeable material before the permeable material is wetted by liquid ink and preventing air from passing through the permeable material when the permeable material is wetted by the liquid ink.

36. (Cancelled)

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37. (Currently Amended) The method of claim 36A method of supplying liquid ink to a printhead assembly including a carrier, a printhead die mounted on the carrier, and a fluid delivery assembly communicated with the carrier, the method comprising:
- communicating a fluid manifold of the carrier with the printhead die;
- communicating the fluid delivery assembly with the fluid manifold of the carrier; and
- filling the fluid delivery assembly with a quantity of the liquid ink, including purging air from the fluid delivery assembly through a filter,
- wherein the filter includes a frame having an opening and a fluid passage
- communicated with the opening formed therein, filter material enclosing the opening and the fluid passage of the frame, first and second fluid ports communicated with the fluid passage,
- and a permeable material communicated with the first fluid port,
- wherein the permeable material of the filter includes a porous plug fitted within the first fluid port, wherein the porous plug is impregnated with a clogging agent.
38. (Currently Amended) The method of claim 33A method of supplying liquid ink to a printhead assembly including a carrier, a printhead die mounted on the carrier, and a fluid delivery assembly communicated with the carrier, the method comprising:
- communicating a fluid manifold of the carrier with the printhead die;
- communicating the fluid delivery assembly with the fluid manifold of the carrier; and
- filling the fluid delivery assembly with a quantity of the liquid ink, including purging air from the fluid delivery assembly through a filter,
- wherein the filter includes a frame having an opening and a fluid passage
- communicated with the opening formed therein, filter material enclosing the opening and the fluid passage of the frame, first and second fluid ports communicated with the fluid passage,
- and a permeable material communicated with the first fluid port,
- wherein the permeable material of the filter includes a mesh material.
39. (Original) The method of claim 33, wherein filling the fluid delivery system with the liquid ink includes passing the liquid ink through the filter material and preventing air from passing through the filter material when the filter material is wetted by the liquid ink.

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40. (Original) The method of claim 39, wherein purging air from the fluid delivery assembly includes passing air through the filter material before the filter material is wetted by the liquid ink.

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